THE INVENTION CLAIMED IS:

1. An injector system comprising;

a source of injection fluid;

a pump device;

a fluid path set disposed between the source of injection fluid and the pump device, and comprising a multi-position valve;

a fluid control device operatively associated with the fluid path set and comprising a valve actuator adapted to operate the multi-position valve, the valve actuator adapted to close the multi-position valve to isolate the pump device from a patient and stop flow of the injection fluid to the patient at substantially any pressure or flow rate generated by the pump device for delivering a sharp bolus of the injection fluid to the patient.

2. The injector system of claim 1 wherein the valve actuator is further adapted to selectively place the pump device in fluid communication with the source of injection fluid for supplying the injection fluid to the pump device.

3. The injector system of claim 1 wherein the valve actuator comprises a position indicator indicating a position of the multi-position valve.

4. The injector system of claim 1 wherein the valve actuator comprises a sensor indicating presence of the multi-position valve in the valve actuator.

5. The injector system of claim 1 wherein the valve actuator comprises a retainer for removably supporting the multi-position valve.

6. The injector system of claim 1 wherein the fluid path set comprises a drip chamber and the fluid control device comprises a fluid level sensing

mechanism operatively associated with the drip chamber for sensing the injection fluid level in the drip chamber.

7. The injector system of claim 1 further comprising an air detector assembly operatively associated with the fluid path set.

8. The injector system of claim 1 wherein the pump device comprises a powered injector.

9. The injector system of claim 1, further comprising:

a source of medical fluid associated with the fluid path set; and

a pump operatively associated with the source of medical fluid for supplying the medical fluid to the patient via the fluid path set.

10. The injector system of claim 9 wherein the fluid path set comprises a drip chamber and the fluid control device comprises a fluid level sensing mechanism operatively associated with the drip chamber for sensing the medical fluid level in the drip chamber.

11. The injector system of claim 9 further comprising an air detector assembly operatively associated with the fluid path set.

12. The injector system of claim 9 further comprising a shut-off valve associated with the pump for stopping flow of the medical fluid to the patient.

13. The injector system of claim 12 wherein the shut-off comprises an automated pinch valve.

14. The injector system of claim 9 wherein the pump comprises a peristaltic pump.

15. The injector system of claim 9 wherein the fluid control device further comprises guides for securing the fluid path set in association with the pump.

16. The injector system of 1, further comprising a hand held control device for controlling the flow rate of the injection fluid from the pump device.

17. An injector system comprising:

a drip chamber comprising a body with a projection; and

a fluid level sensing mechanism comprising:

a drip chamber support for supporting the drip chamber body; and

a fluid level sensor associated with the drip chamber support, the drip chamber support adapted to support the drip chamber body such that the projection is operatively associated with the fluid level sensor.

18. The injector system of claim 17 wherein the projection extends longitudinally along the drip chamber body.

19. The injector system of claim 17 wherein the fluid level sensor comprises an ultrasonic or optical fluid level sensor.

20. The injector system of claim 17 wherein the drip chamber support is adapted to support the drip chamber body such that the projection is in contact with the fluid level sensor.

21. An air detector assembly for a fluid control device comprising:

an air column detector adapted to detect the presence of air in medical tubing; and

a retaining device for securing the medical tubing in operative association with the air column detector, the retaining device comprising:

a base adapted for association with the air column detector; and

a closure member connected to the base and adapted to secure the medical tubing in operative association with the air column detector.

22. The air detector assembly of claim 21 wherein the closure member is movable from a closed position wherein the closure member secures the medical tubing in operative association with the air column detector, and an open position allowing the medical tubing to be disassociated from the air column detector

23. The air detector assembly of claim 22 wherein the closure member is biased to the open position and secured in the closed position by a releasable locking mechanism.

24. The air detector assembly of claim 22 wherein the closure member is secured in the closed position by a releasable locking mechanism.

25. The air detector assembly of claim 21 wherein the closure member is formed of substantially clear plastic material to permit viewing of the medical tubing.

26. A fluid control device for connecting a pump device to a source of injection fluid comprising;

a fluid path set comprising a multi-position valve adapted to associate a patient and the source of injection fluid with the pump device; and

a valve actuator adapted to operate the multi-position valve to selectively isolate the pump device from the patient and place the pump device in fluid communication with the source of injection fluid for supplying the injection fluid to the pump device.

27. The fluid control device of claim 26 wherein the valve actuator comprises a position sensor indicator indicating a position of the multi-position valve.

28. The fluid control device of claim 26 wherein the valve actuator comprises a sensor indicating presence of the multi-position valve in the valve actuator.

29. The fluid control device of claim 26 wherein the valve actuator comprises a retainer for removably supporting the multi-position valve.

30. The fluid control device of claim 26 further comprising a fluid level sensing mechanism adapted to sense a level of fluid in at least one drip chamber associated with the fluid path set.

31. The fluid control device of claim 30 wherein the at least one drip chamber comprises a body with a projection, and the fluid level sensing mechanism further comprises:

a drip chamber support adapted to support the at least one drip chamber; and

at least one fluid level sensor associated with the drip chamber support, the drip chamber support adapted to support the at least one drip chamber such that the projection is operatively associated with the at least one fluid level sensor.

32. The fluid control device of claim 31 wherein the projection extends longitudinally along the body.

33. The fluid control device of claim 31 wherein the at least one fluid level sensor comprises an ultrasonic or optical fluid level sensor.

34. The fluid control device of claim 31 wherein the drip chamber support is adapted to support the at least one drip chamber such that the projection is in contact with the at least one fluid level sensor.

35. The fluid control device of claim 31 wherein the fluid path set comprises a second drip chamber adapted for connection with a source of medical fluid, the second drip chamber comprising a body with projection, and wherein the drip chamber support is adapted to support the drip chamber bodies such that the projection on each of the drip chambers bodies is operatively associated with a fluid level sensor.

36. The fluid control device of claim 26 further comprising a pump for supplying a medical fluid to the patient via the fluid path set.

37. The fluid control device of claim 36 further comprising a shut-off valve associated with the pump for stopping flow of the medical fluid to the patient.

38. The fluid control device of claim 37 wherein the shut-off comprises an automated pinch valve.

39. The fluid control device of claim 36 wherein the pump comprises a peristaltic pump.

40. The fluid control device of claim 36 further comprising a fluid level sensing mechanism adapted to sense a level of medical fluid in a drip chamber associated with the fluid path set.

41. The fluid control device of claim 36 further comprising an air detector assembly operatively associated with the fluid path set.

42. The fluid control device of claim 36 further comprising guides for securing the fluid path set in association with the pump.

43. The fluid control device of claim 26 further comprising an air detector assembly operatively associated with the fluid path set.

44. The fluid control device of claim 43, wherein the air detector assembly comprises:

an air column detector adapted to detect the presence of air in medical tubing of the fluid path set; and

a retaining device for securing the medical tubing in operative association with the air column detector.

45. The fluid control device of claim 44 wherein the retaining device comprises:

a base adapted for association with the air column detector; and

a closure member connected to the base and adapted to secure the medical tubing in operative association with the air column detector.

46. The fluid control device of claim 45 wherein the closure member is movable from a closed position wherein the closure member secures the medical tubing in operative association with the air column detector, and an open position allowing the medical tubing to be disassociated from the air column detector

47. The fluid control device of claim 46 wherein the closure member is biased to the open position and secured in the closed position by a releasable locking mechanism.

48. The fluid control device of claim 46 wherein the closure member is secured in the closed position by a releasable locking mechanism.

49. The fluid control device of claim 45 wherein the closure member is formed of substantially clear plastic material to permit viewing of the medical tubing.

50. A method of preparing a fluid delivery system to deliver an injection fluid to a patient, comprising:

providing a pump device for supplying the injection fluid to the patient under pressure;

providing a fluid control device;

associating a fluid path set with the fluid control device; and

connecting the pump device with the source of the injection fluid via the fluid path set.

51. The method of claim 50 wherein the pump device comprises a syringe actuated by a powered injector.

52. The method of claim 50 wherein the step of associating the fluid path set with the fluid control device comprises associating a multi-patient set with the fluid control device and removably connecting a per-patient set with the multi-patient set.

53. The method of claim 52 wherein the multi-patient set and per-patient set are removably connected by at least one connector.

54. The method of claim 52 wherein the step of associating the multi-patient set with the fluid control device comprises associating a multi-position valve associated with the multi-patient set with a valve actuator associated with the fluid control device.

55. The method of claim 52 wherein the pump device is connected with the source of the injection fluid via the multi-patient set.

56. The method of claim 50 further comprising connecting the fluid path set to a source of medical fluid, and associating the fluid path set with a pump adapted to deliver the medical fluid to the patient.

57. The method of claim 56 further comprising actuating the pump to purge air from the portion of the fluid path set associated with the source of medical fluid.

58. The method of claim 50, further comprising connecting the fluid path set to a patient catheter.

59. The method of claim 50, further comprising associating a hand held control device with the pump device for controlling the pump device.

60. The method of claim 50 further comprising:

actuating the fluid control device to permit fluid communication between the pump device and the source of injection fluid;

actuating the pump device to draw injection fluid from the source of injection fluid into the pump device; and

actuating the pump device to purge air from the fluid path set into the source of injection fluid.

61. The method of claim 60 wherein the fluid control device and pump device are controlled according to instructions programmed in a control unit operatively connected to the fluid control device and the pump device.

62. The method of claim 61, wherein the control device comprises a graphical interface display.

63. The method of claim 60 wherein the pump device comprises a syringe actuated by a powered injector.

64. The method of claim 60 wherein the pump device comprises a syringe.

65. The method of claim 64 wherein the first step or act of actuating the pump device comprises moving a syringe plunger in a proximal direction within the syringe to draw injection fluid into the syringe from the source of injection fluid.

66. The method of claim 65 wherein the second step or act of actuating the pump device comprises reversing the direction of the syringe plunger in the syringe to purge air from the fluid path set.

67. The method of claim 60 wherein the fluid control device comprises a valve actuator adapted to actuate a multi-position valve associated with the fluid path set.

68. The method of claim 60 further comprising deactuating the pump device and actuating the fluid control device to isolate the pump device from the source of injection fluid.

69. A method of delivering an injection fluid to a patient comprising:

providing a fluid delivery system comprising a source of injection fluid, a pump device, and a fluid path set comprising a fluid control device disposed between the source of injection fluid and the pump device;

actuating the fluid control device to prevent fluid communication between the pump device and the source of injection fluid and to permit fluid communication between the pump device and the patient;

actuating the pump device to deliver pressurized injection fluid to the patient; and

monitoring a level of injection fluid in a container associated with the fluid path set and in fluid communication with the source of injection fluid.

70. The method of claim 69 further comprising actuating the fluid control device to stop fluid communication between the pump device and the patient at substantially any pressure or flow rate generated by the pump device.

71. The method of claim 69 wherein the pump device comprises a syringe or a peristaltic pump.

72. The method of claim 71 wherein the step or act of actuating the pump device comprises moving a syringe plunger in a distal direction within the syringe to force fluid out of the syringe and into the patient via the fluid path set.

73. The method of claim 69 wherein the fluid control device comprises an automated multi-position valve.

74. The method of claim 69 wherein the pump device is actuated by a hand held control device operatively connected to the pump device.

75. The method of claim 69 wherein the fluid control device and pump device are controlled according to instructions programmed in a control unit operatively connected to the fluid control device and the pump device.

76. The method of claim 69 further comprising connecting the fluid path set to a source of medical fluid, and delivering the medical fluid to the patient associating with a pump associated with the fluid control device.

77. The method of claim 69 wherein the pump device comprises a syringe and the method further comprises actuating the fluid control device to permit fluid communication between the syringe and the source of injection fluid and refilling the syringe with injection fluid from the source of injection fluid.

78. The method of claim 77 further comprising:

actuating the fluid control device to close fluid communication between the pump device and the source of injection fluid and to permit fluid communication between the pump device and the patient; and

actuating the pump device to again deliver pressurized injection fluid to the patient.

79. The method of claim 77 further comprising monitoring a level of injection fluid in a container associated with the fluid path set and in fluid communication with the source of injection fluid.

80. The method of claim 69 wherein the pump device comprises a syringe, and further comprising:

actuating the fluid control device to isolate the syringe from the source of injection fluid and the patient; and

retracting a syringe plunger in the syringe to reduce fluid pressure in the syringe.

81. The injector system of claim 17 further comprising an indicator light associated with the fluid level sensor for illuminating the drip chamber.

82. The injector system of claim 81 wherein the fluid level sensing mechanism is adapted to cause the indicator light to intermittently operate if a fluid level in the drip chamber is below a preset level.